UNCOVER

WORK-STATION PERFORMANCE = DESKTOP AFFORDABILITY

HP xw4550 WORKSTATION

Workstation power...uniquely affordable

HP xw4550 Workstation frequently asked questions 3
AMD® Opteron Technology 3
Memory 4
Drives 5
Chassis design 6
Operating systems 7
Linux 7
PCI Express Graphics and I/O 10
ISV certifications 10
Security 11
Manageability 11
Options and modules 12
Warranty and support 12

HP XW4550 WORKSTATION

Operating systems:

Genuine Windows Vista® Business 32-bit

Genuine Windows Vista® Business 64-bit (available Q1, 2008)

Genuine Windows Vista® 32-bit downgrade to Genuine Microsoft® Windows® XP Professional 32-bit

HP Installer Kit for Linux (includes drivers for both 32-bit & 64-bit OS versions of Red Hat Enterprise Linux WS4 and WS5); available Q1, 2008)[1]

Red Flag Linux v5 (available in China only)

Chipset: AMD 690G with ATI Radeon X1250

Processor:

Second-Generation AMD Opteron™ 1000 Series processors with HyperTransport[2,3,4]

Second-Generation AMD Opteron processor Model 1212 (2.00 GHz) 1 MB L2 Cache per core[2,3,4]

Second-Generation AMD Opteron processor Model 1214 (2.20 GHz) 1 MB L2 Cache per core[2,3,4]

Second-Generation AMD Opteron processor Model 1216 (2.40 GHz) 1 MB L2 Cache per core[2,3,4]

Second-Generation AMD Opteron processor Model 1218 (2.60 GHz) 1 MB L2 Cache per core[2,3,4]

Second-Generation AMD Opteron processor Model 1220 (2.80 GHz) 1 MB L2 Cache per core[2,3,4]

Second-Generation AMD Opteron processor Model 1222 (3.00 GHz) 1 MB L2 Cache per core[2,3,4]

Memory and I/O interface: HyperTransport 1000 MHz

Memory: Up to 4 GB5 DDR2 667 MHz ECC; Up to 2 GB DDR2-667 MHz non-ECC; 4 DIMM slots

Expansion slots: 4 full length slots: 1 PCI Express (PCIe) x16 graphics, 1 PCI Express (PCIe) x4 (x1 electrical), 2 PCI slots

Power supply: 300W wide-ranging, active Power Factor Correction, 80 PLUS efficient; ENERGY STAR® qualified optional

Audio: Integrated HD Audio (Realtek ALC260), opt. PCI Sound Blaster X-Fi XtremeGamer

Drive controllers: Integrated 4-channel SATA 3.0 Gb/s controller with RAID5 0, 1 and NCQ[6]

HyperThreading: N/A

HP XW4600 WORKSTATION

Operating systems:

Genuine Windows Vista® Business 32-bit

Genuine Windows Vista® Business 64-bit

Genuine Windows Vista® 32-bit downgrade to Genuine Microsoft® Windows® XP Professional 32-bit

Genuine Windows Vista® 64-bit downgrade to Genuine Microsoft® Windows® XP Professional 64-bit (available Q1, 2008)[1]

Red Hat Enterprise Linux™ WS 4 64-bit

HP Installer Kit for Linux (includes drivers for both 32-bit & 64-bit OS versions of Red Hat Enterprise Linux WS4 and WS5)

Red Flag Linux v5 (available in China only)

Chipset: Intel x38 Express

Processor:

Intel® Pentium® Dual-Core E2180 (Dual-Core 2.00 GHz, 1 MB L2 cache, 800 MHz FSB)[4,7,8,9]

Intel Core™ 2 Duo E4500 (Dual-Core 2.20 GHz, 2 MB shared L2 cache, 800 MHz FSB)[4,7,8,9]

Intel Core 2 Duo E6550 (Dual-Core 2.33 GHz, 4 MB shared L2 cache, 1333 MHz FSB)[4,7,8,9]

Intel Core 2 Duo E6750 (Dual-Core 2.66 GHz, 4 MB shared L2 cache, 1333 MHz FSB)[4,7,8,9]

Intel Core 2 Duo E6850 (Dual-Core 3.00 GHz, 4 MB shared L2 cache, 1333 MHz FSB)[4,7,8,9]

Intel Core 2 Quad Q6600 (Quad-Core 2.40 GHz, 2 x 4 MB shared L2 cache, 1066 MHz FSB)[4,7,8,9]

Intel Core 2 Quad Q6700 (Quad-Core 2.66 GHz, 2 x 4 MB shared L2 cache, 1066 MHz FSB)[4,7,8,9]

Intel Core 2 Extreme Processor QX6850 (Quad-Core 3.00 GHz, 2 x 4 MB shared L2 cache, 1333 MHz FSB)[4,7,8,9,10,11]

Memory and I/O interface: 1333 MHz

Memory: Up to 8 GB5 DDR2 800 MHz ECC, up to 4 GB DDR2 667 ECC; 4 DIMM slots

Expansion slots: 7 full length slots: 2 PCI Express (PCIe) x16 graphics, 1 PCIe x8 (x4 electrical) slot, 1 PCIe x1 slot, 3 PCI slots

Power supply: 475W; active Power Factor Correction; 80 PLUS efficient; ENERGY STAR® qualified configurations

Audio: Integrated high definition audio with jack retasking capability, opt. PCI Sound Blaster X-Fi XtremeGamer

Drive controllers: Integrated serial ATA controller (ICH9R) 3 Gb/s (NCQ with 5 internal and 1 external SATA connectors) with RAID 0, 1, 5 and 10 capability; removable boot drive option[6]

HyperThreading: N/A

Certain Windows Vista product features require advanced or additional hardware. See http://www.microsoft.com/windowsvista/getready/hardwarereqs.mspx and http://www.microsoft.com/windowsvista/getready/capable.mspx for details. Windows Vista Upgrade Advisor can help you determine which features of Windows Vista will run on your computer. To download the tool, visit http://www.windowsvista.com/upgradeadvisor. All HP Personal Workstations are capable of running Genuine Windows Vista Business.

[1] Available for end user customers that are a business (including governmental or educational institutions) who are expected to annually order at least 25 Customer Systems with the same Custom Image.

[2] This system requires a separately purchased 64-bit operating system and 64-bit software products to take advantage of the 64-bit processing capabilities of AMD OpertonTM series 1000 processor technology. Dual-core processing available with AMD OpertonTM 1000 series processor technology is a recent technology innovation designed to improve performance of this-system. Given the wide range of software applications available, performance of a system including a 64-bit operating system and a dual-core processor will vary.

[3] AMD's numbering is not a measurement of clock speed.

[4] GHz refers to internal clock speed of the processor. Other factors besides clock speed may impact system and application performance.

[5] Above 3 GB, all memory may not be available due to system resource requirements.

[6] Hardware RAID is not supported on Linux systems. The Linux kernel, with built-in software RAID, provides excellent functionality and performance. It is a good alternative to hardware-based RAID. Please visit http://h20000.www2.hp.com/bc/docs/support/SupportManual/c00060684/c00060684.pdf for RAID capabilities with Linux.

[7] Quad-Core and Dual-Core are new technologies designed to improve performance of multithreaded software products and hardware-aware multitasking operating systems and may require appropriate operating system software for full benefits; check with software provider to determine suitability; Not all customers or software applications will necessarily benefit from use of these technologies.

[8] Intel's numbering is not a measurement of higher performance.

[9] Actual bus clock rate is less. Listed bus speed represents the effective data transfer rate.

[10] 64-bit computing on Intel architecture requires a computer system with a processor, chipset, BIOS, operating system, device drivers and applications enabled for Intel® 64 architecture. Processors will not operate (including 32-bit operation) without an Intel 64 architecture-enabled BIOS. Performance will vary depending on your hardware and software configurations. See www.intel.com/info/em64t for more information.

[11] This workstation does not support the Intel Core 2 Extreme processor over-clocking feature.

Who will benefit from the functionality and features of the HP xw4550 Workstation?

Market Segment	Benefits
MCAD	The xw4550 is pre-certified with a variey of AutoDesk, UGS, PTC software and others, providing an optimized solution for mechanical engineers, architects, electrical designers and civil engineers, and software developers.
DCC	The xw4550 is certified with Adobe Premier Pro, Avid and more giving entry and mid-level profesionals an affordable digital content creation system they can count on.
Power office	For advanced business users who have outgrown the limits of traditional PCs, the xw4550 provides an easy, affordable way to step up to workstation power.

Does HP offer ENERGY STAR® support on the xw4550?

Yes. HP offers a standard 80 PLUS efficient power supply, which is a requirement for all ENERGY STAR configurations as well as select SKUs that have been certified for ENERGY STAR.

Do I need a business desktop or an entry workstation? What is the difference?

The value of a workstation when compared to a business desktop PC is characterized by several things:

- High-performance 3D OpenGL graphics and professional 2D multi-display graphics—for the ultimate visualization and design interaction experience
- Professional ISV certifications on technical applications - for guaranteed compatibility and reliability, optimized performance, and supportability
- Choice of operating system (Microsoft Windows XP, Vista, or Red Hat Linux)—for flexibility of working environments and IT infrastructure
- ECC memory—for error correction and improved data integrity
- High power—for rich configurations

Will I have to change my golden image on the HP xw4550 Workstation?

Yes. The HP xw4550 is a completely new platform based on new technology from AMD. The system drivers are new; therefore you will have to create new golden images. Manageability software is available to help with this image building process.

AMD® Opteron Technology

What are some of the key features and benefits offered by AMD Opteron?

AMD's Opteron processors provide outstanding performance in a small and power-efficient package. Some of the key unique enablers to this performance include AMD's Direct-Connect architecture and HyperTransport technology. See below for more information on these features.

The HP xw4550 Workstation implements AMD's Direct Connect Architecture. What does this mean?

The AMD Direct Connect Architecture addresses and helps eliminate the real challenges and bottlenecks of system architecture providing superior computing performance. With the AMD Opteron Direct Connect Architecture, the HP xw4550's memory is connected directly to the CPU optimizing memory performance, the I/O is directly connected to the CPU helping balance throughput and enable expandable I/O and the CPU are connected directly to CPU allowing more Linear Symmetrical Multiprocessing.

What is the advantage of having the DDR memory controller integrated (on-chip)?

The HP xw4550's AMD Opteron processor integrates the memory controller on-chip, reducing memory latency. Reduced memory latency is important for applications that frequently miss cache (i.e. scatter-gather operations).

The HP xw4550 delivers AMD HyperTransport™ technology. What is HyperTransport?

HyperTransport technology is a high-speed, high-performance, low-latency point-to-point cache coherent link for integrated circuits. It provides a universal connection designed to reduce the number of buses within the system, provide a high-performance link for embedded applications, and enable highly scalable multiprocessing systems. HyperTransport is designed to enable the chips inside of the workstation and networking and communications devices to communicate with each other faster. The end result is a reduction in bottlenecks and increased performance.

What are the benefits of dual-core processors?

The AMD dual-core processor provides double the processing resources in the same footprint compared to similar single core offerings. Dual-core processors are ideal for usage models requiring multitasking (running many applications or simulations at once); working on spreadsheets while listening to music with virus checkers and system backups running (power office); or those using applications that can split a task across processors (multithreaded), like animation/rendering—DCC.

Does the new dual-core processor offer any performance improvement over previous single and dual-core processors?

Yes, the new dual core processors from AMD offers significant performance improvement over previous generation dual core processors on many applications and in many work environments.

Dual-Core. Dual-Socket. Quad-Core. Multi-Core. What do these terms mean?

Dual-socket	Two physical CPU sockets
Dual-core	Each CPU has exactly two cores
Multi-core	CPU has two or more cores
Dual-processor	Old terminology for a system with two processors in two sockets.

Memory

What memory is used on the HP xw4550? Is it the same memory use on the HP xw4600?

Yes and no. The HP xw4550 uses DDR2-667 unbuffered ECC memory technology for ECC memory configurations up to 4 GB, as well as DDR2-667 unbuffered non-ECC memory up to 2 GB. The xw4600 uses DDR2-667 and DDR2-800 for all ECC configurations, and does not offer non-ECC configurations.

Why do I sometimes see memory in terms of PC2-5300? How does this relate to memory bandwidth?

Clock rate is directly proportional to memory bandwidth. The bandwidth of 667 MHz DDR2 memory is calculated as 667 MHz 8 bytes per channel = 5,336 MB/s or 5.3 GB/s. For simplicity, the value is thus referred to as PC2-5300 DDR memory. The "2" after PC just identifies this memory as DDR2 memory. This nomenclature is sometimes more accepted in the industry.

The memory bandwidth of the system is improved upon by implementing dual-channel memory architecture. Above, notice the factor "8 bytes per channel". By implementing two channels you can essentially double your bandwidth. Instead of a single DIMM working alone, a pair of DIMMs essentially works together to split up the data exchange to and from the rest of the system. On the HP xw4550 the dual-channel memory architecture results in very high memory bandwidths on a personal workstation. With PC2-5300 DDR (667MHz) memory, the system's theoretical memory bandwidth is an astounding 10.6 GB/s.

How does this memory bandwidth impact the HP xw4550 system performance?

Many technical applications require huge amounts of memory bandwidth, especially those that use 3D graphics or that have a large percentage of floating point calculations. These applications will benefit from the massive memory bandwidth provided by the HP xw4550. Additionally, no configurations using three memory modules are supported.

Memory latency is another very important factor. At the highest level, latency is a measure of how long it takes the memory subsystem to respond to a cache miss in the processor. The lower (shorter) the memory latency, the better the application performance, especially for applications that "thrash the cache."

Does the memory for the HP xw4550 have to be ordered in pairs? What is the maximum memory configuration?

To utilize the dual-channel memory architecture advantages, memory must be installed in pairs. However, a single DIMM will work in the system (i.e. you could put 1x256 MB in the system). It is highly recommended that memory be added in pairs, as the performance benefit is substantial. Because of this, no single DIMM configurations are offered on xw4550.

When installing memory in the HP xw4550, pairs must be matched in size and speed (i.e. 2x512 MB/667 MHz, not 1x512 MB/667, 1x1 GB/667) and multiple pairs must be matched in speed. The HP xw4550 has 4 DIMM slots (2 dual-channels) and supports up to 4 GB of physical memory.

Does the HP xw4550 offer ECC and non-ECC memory? If so, what speeds are/will be offered?

The HP xw4550 offers both ECC and non-ECC memory. The following table outlines what memory is available:

DIMM size/speed	256 MB	512 MB	1 GB
DDR2 667 MHz, ECC	Not Available	Available	Available
DDR2 667 MHz, non-ECC	Available	Expected availability Q4, 2007	Not available

What is ECC memory? Why is ECC memory important?

"ECC" stands for Error Correcting Code or Error Checking and Correction. ECC memory modules have an extra chip that performs a comparison of the data that is read in and written out. This chip has the capability of detecting single and multiple bit errors and correcting single bit errors on the fly. If this extra chip detects a single bit error, it will correct the discrepancy and the system will continue to function without any interruption. If a multiple-bit error (which is extremely uncommon) is detected, the memory module will issue a non-maskable interrupt (NMI) which will shutdown the system, avoiding any data corruption in the system. Single- and multiple-bit data errors can go undetected without ECC memory.

Data integrity is always important, but when you are designing an airplane or automobile part, under a tight deadline on your TV commercial production, analyzing population densities for domestic policy reform, or managing your clients' financial portfolios of millions of dollars, data integrity is absolutely vital. And in today's cut-throat competitive environment, work flow efficiency and utilization rates are also crucial. All HP workstations, including the HP xw4550, offer ECC memory which provides an extra level of data integrity, reliability, and greater system uptime.

Drives

Is the floppy drive really optional on the HP xw4550?

Yes. For ultimate price flexibility and/or security concerns, we now offer systems with or without the floppy drive. With the advancement of technologies like USB Disk Keys, bootable CD-ROMs/CD-RWs, external storage, etc. the necessity of a floppy drive has really declined over the past few years and many customers simply don't need them anymore. We offer the flexibility should you decide it is not needed on your HP xw4550.

Is the optical drive really optional on the HP xw4550?

Yes. Once again, for the ultimate in price flexibility and because of security concerns, we now offer systems with or without an optical drive. Microsoft has lifted a requirement that forced the integration of an optical device on previous systems, so this is now possible for the first time on the HP xw4550.

Does HP offer any other removable storage options?

Yes. HP offers an optional 16-in-1 Media Card reader that can be factory-installed on the HP xw4550. This device will enable users to quickly and easily transfer data between their workstation and their flash media (Compact Flash, Smart Media, etc). This device will occupy the bottom optical bay in the HP xw4550.

What optical drives are available with the HP xw4550? What software is bundled with these drives?

The following table outlines what optical drives are currently available and what software is bundled with each drive.

2007 optical apps set		DVD-ROM (SATA)	DVD+/-RW Double Layer SuperMulti* (SATA) with LightScribe Direct Disc Labeling
	• Support on Windows XP 32-bit, Vista Business 32-bit, Vista Business 64-bit		
	• CTO, apps are preinstalled		
Create data & music CDs/DVDs	• Roxio Easy Media Creator 9		●
Create video CDs/DVDs	• Roxio Easy Media Creator 9		●
Play DVDs and video files	• WinDVD Player 5	●	●
Back up files or entire system	• HP Backup and Recovery (SoftThinks)		●

*Actual speeds may vary. Does not permit copying of commercially available DVD movies or other copyright protected materials. Intended for creation and storage of your original material and other lawful uses. Doublelayer discs can store more data than single-layer discs. However, double-layer discs burned with this drive may not be compatible with many existing single-layer DVD drives and players. LightScribe creates a monochrome image. LightScribe media required and sold separately. Note that DVD-ROM cannot read or write to 2.6 GB Single-Sided/5.2 GB Double-Sided—Version 1.0 media.

Does the HP xw4550 offer and support SATA 3.0 Gb/s hard drives?

Yes. The HP xw4550 has an integrated 4-channel SATA 3.0 Gb/s controller for Serial ATA hard drives and optical drives. We offer the following SATA 3.0 Gb/s hard drives: 80 GB, 160 GB, 250 GB, and 500 GB (7200 rpm). As noted above, we will offer SATA versions of DVD-ROM (SATA) and DVD+/-RW Double Layer, Supermulti (SATA) with LightScribe Direct Disc Labeling optical drives.

Does the HP xw4550 support Serial ATA (SATA) RAID?

Yes. The chipset used on the HP xw4550 has integrated 4-channel SATA controller with Native Command Queuing (NCQ) and RAID support for RAID 0, (striped) and RAID 1 (mirrored). You can choose to have a high performance RAID 0 array of hard drives where data is striped across multiple hard drives (this RAID method greatly improves data access times and system performance). You can also choose to have a highly reliable RAID 1 array of hard drives, where data is duplicated to multiple hard drives at once (this RAID method essentially creates a backup copy of all your data in real time).

What is the value of Native Command Queuing or NCQ?

NCQ is a performance enhancement for hard drives. NCQ reorganizes read/write commands in such a way that they can be executed in a more efficient manner than typical synchronous execution. NCQ performance improvement is highly dependant on the type of application and load, but can be as high as 20%.

Are Serial Attached SCSI drives and controllers offered on the HP xw4550?

No. Customers interested in SAS or 10k RPM SATA hard drives can find an outstanding selection on the HP xw4550 and other higher performance HP workstations.

Chassis design

Is the chassis for the HP xw4550 the same chassis used on the HP xw4600? Is it stilll convertible

Yes. The HP xw4550 uses the same highly engineered chassis as the HP xw4600. The HP xw4550 is housed in an intelligently designed chassis with tool-less access for ease of servicing, upgrading and maintenance. It is still convertible from a desktop orientation to a minitower orientation. The HP xw4550 is rackable and shelving kits are available.

What ports does the HP xw4550 have on the front bezel?

The front bezel on the HP xw4550 has the following ports available: (1) IEEE 1394a port*, (2) USB 2.0 ports, (1) microphone port, and (1) headphone port.

*The IEEE 1394a port is only active when the optional IEEE 1394 PCI card is installed in the system.

Operating Systems

What Operating Systems are available on the new HP xw4550 Workstation?

Genuine Windows Vista® Business 32-bit

Genuine Windows Vista® Business 64-bit (available Q1, 2008)

Genuine Windows Vista® 32-bit downgrade to Genuine Microsoft® Windows® XP Professional 32-bit[1]

HP Installer Kit for Linux (includes drivers for both 32-bit & 64-bit OS versions of Red Hat Enterprise Linux WS4 and WS5); available Q1, 2008)

Red Flag Linux v5 (available in China only)

Certain Windows Vista product features require advanced or additional hardware. See http://www.microsoft.com/windowsvista/getready/hardwarereqs.mspx and http://www.microsoft.com/windowsvista/getready/capable.mspx for details. Windows Vista Upgrade Advisor can help you determine which features of Windows Vista will run on your computer. To download the tool, visit http://www.windowsvista.com/upgradeadvisor

[1] Available for end user customers that are a business (including governmental or educational institutions) who are expected to annually order at least 25 Customer Systems with the same Custom Image.

Is dual OS preload an option?

Dual OS preload will not be offered due to restrictions of licensing agreements.

Is Microsoft Windows XP x64 Edition supported on the new HP xw4550 Workstations?

Microsoft Windows XP x64 Edition is not supported on the new HP xw4550. Microsoft plans to discontinue authorization for OEMs like HP to preinstall this OS in early 2008.

Is Microsoft Windows 2000 supported on the new HP xw4550 Workstations?

Microsoft Windows 2000 is not supported on the new HP xw4550. Microsoft discontinued OEM sales of Windows 2000 on March 31, 2004. Tier 1 OEMs, such as HP, can no longer ship systems with this OS.

Will existing 32-bit software run, without being re-compiled, on a 64-bit operating system?

This is highly dependent on the specific application. Many 32-bit applications will run on 64-bit operating systems without difficulty, but some have issues. HP recommends you check with your application provider for details.

Linux

Does the HP xw4550 Workstation support linux?

Yes. Red Hat Enterprise WS 4 and WS 5 are available via the HP Installer Kit for Linux Q1, 2008. HP also offers Red Flag Linux 5 preinstalled for customers in China.

What is the HP Installer Kit for Linux? (The HP Installer Kit for Linux is expected to be available on the HP xw4550 Workstation Q1, 2008.)

The HP Installer Kit for Linux is a set of HP provided CD's to be used in conjunction with a Red Hat Enterprise Linux installation to complete your Linux workstation installation. The CD's in the HPIKL are:

- HP Driver CD for Red Hat Enterprise Linux WS 4 and 5.

  This is a "post install" CD used at the end of a Red Hat Enterprise Linux installation which contains HP content for your Linux workstation. Content provided includes:

  - NVIDIA and ATI accelerated graphics drivers that have passed HP quality standards and are compatible with the hardware platform and RHEL releases
  - HP Documentation links
  - Additional hardware drivers provided by HP that are not part of the standard Red Hat Enterprise Linux releases

  All content provided on this CD is compatible with RHEL WS 4 and RHEL WS 5.

- Red Hat Driver Disk - for a specific Red Hat Enterprise Linux Update

  This is the "RED" CD and is not included in ALL versions of the HPIKL. It will be included with the HPIKL when a hardware driver is required for the workstation platform that has not yet become a part of a standard Red Hat Enterprise Linux release. The next subsequent Update from Red Hat removes the need for this CD.

For information on how to use the HP Driver CD or the Red Hat Driver Disk, refer to the HP Linux Workstation User manual at http://www.hp.com/support/linux_user_manual (See chapters 1-3).

Does the HP Installer Kit for Linux actually contain the Red Hat Box Sets?

No, you must obtain the Red Hat Box Set of your choice. The HP Installer Kit for Linux is a CD set to be used in conjunction with a RHEL install and supports Red Hat Enterprise WS 4 and WS 5.

Red Hat requires that you purchase Red Hat Enterprise WS 4 or WS 5. It is available from HP as After Market Option (AMO) kit.

HP is only offering a preload of RHEL WS 4 (64 bit). What if I want to run the 32 bit OS instead?

Included with the preloaded RHEL WS 4 workstation is a Red Hat Network registration card. Use this card to register your workstation with the Red Hat Network. This enables you to download all versions of Red Hat Enterprise Linux WS 4 for your workstation, and get any future updates from Red Hat as well. You can choose the 32 bit OS instead of the 64 bit OS if desired.

Note: See the detailed hardware support matrix at http://www.hp.com/support/linux_user_manual for clarification of what minimum Red Hat release/update is required for Red Hat Enterprise Linux to functional correctly on your workstation platform.

Will I get recovery CD's with my preloaded Linux workstation?

The expected OS delivery model for Red Hat Enterprise Linux is electronic. This is because of the Red Hat Network that Red Hat uses to continually provide updates for their customers for their operating system releases.

As a result HP has found that creating a set of OS installation CD's has limited value. Many workstation owners quickly want to register to the Red Hat Network and obtain newer OS versions or build their own custom golden image. So instead HP is including the OS install CD's as ISO images on a hard disk drive partition. You can choose to create install CD's from the ISO images if you prefers. Or you can get them from the Red Hat Network as well.

What value does HP bring to Linux on personal Workstations?

- HP has a dedicated Linux R&D team with 25+ years of experience in OS and driver development
- HP provides an engineered solution of Red Hat Linux
- HP provides a single point of support (for warranty and extended software support services)
- HP has close relationship with multiple third-parties to enable the complete Linux workstation solution
- HP engineering provides extensive pre-sales technical support
- HP publishes detailed documents, drivers, and white papers on the support website regarding Linux on HP workstations

Why would I choose Linux on HP workstations?

- HP Workstations deliver ROI-based solutions on industry standard platforms.
- HP partners with customers and key technology providers to deliver an HP engineered Linux workstation you can deploy quickly and with confidence
- HP Workstations offer worry-free deployment through:
  - HP worldwide service and support
  - HP accountability and indemnification
- HP Workstations offers on-line technical white papers, drivers, and customer advisories enabling customers to support themselves more easily

Why is HP supporting Linux on workstations?

Some of HP's technical workstation markets and customers rely on the UNIX operating environment, both in their infrastructure and the applications that they use. Linux on personal workstations is a very viable and attractive UNIX alternative. In addition, many OEMs are turning to Linux as a cost effective open source operating system for many different applications. This is especially true in the DCC, EDA, oil and gas, OEM, and some MCAD markets.

Offering HP workstations with Linux is part of HP's overall multi-OS strategy which provides HP-UX, Linux and Windows solutions to customers.

Where can I find (in detail) what workstation hardware is supported by Red Hot Linux?

At www.hp.com/support/linux_hardware_matrix is a detailed hardware support matrix that is kept up to date every month with the latest support information for hardware platforms and their components. This matrix will indicate the minimum RHEL update version required for the workstation platform to operate correctly. As well it will indicate what add-in components are supported by RHEL.

Where can I find technical information to guide my installation, configuring, or customizing of my Linux workstation solution?	At www.hp.com/support/linux_user_manual under "setup, install, and configure" you will find multiple white papers on Linux configuration tips such as enabling large memory configurations, hyper threading, multi-headed graphics configurations, and release notes for each Red Hat Enterprise Linux Update.
Why is HP enabling the Red Hat distribution?	HP has a strategic corporate relationship with Red Hat resulting in Red Hat solutions across all of HP product lines. As well, Red Hat has a market presence that results in customer demand for this distribution. The ISV's of importance to the Linux workstation market are certified on Red Hat Enterprise Linux as well.
Will Linux distributions other than Red Hat work on HP Workstations?	Most likely they will work. However HP warranty support is only available for the Red Hat distribution. In addition HP has reviewed the performance, functionality, and reliability of the Red Hat distribution on the hardware platform and made any required adjustments. At www.hp.com/support/linux_hardware_matrix you can find a detailed hardware support matrix that is kept up to date every month with the latest support information for hardware platforms and their components.
What is HP's Linux strategy in the future?	HP workstations are continually evaluating market trends along with customer requirements to determine solutions that best meet customer needs. HP's corporate strategy is strategic relationships with both Red Hat and Novell/SUSE and many of HP's products offer both Red Hat and SuSE distributions.
What does the future hold for HP and Linux?	HP simplifies the integration of open source and Linux! Our solutions are built with best-of-breed software from our industry leading partners, complemented by HP value-add in areas like management and high availability clustering, implemented on market-leading standards-based platforms, and supported by HP Services worldwide. Known for its performance, scalability, reliability and low cost, Linux is proving to be the answer for workstation environments that were in the past traditionally a proprietary UNIX infrastructure. Such markets as Digital Content Creation (DCC), oil and gas, EDA, MCAD, and software development areas are adopting and using Linux in their infrastructures.
Why doesn't HP offer a dual boot with Windows and Linux?	HP cannot offer dual boots due to licensing agreements.
What version of Red Hat Linux supports 64-bit?	Red Hat Enterprise Linux WS4 (RHEL WS4) has both a 32-bit version and a 64-bit version. HP will preinstall the 64-bit version of RHEL WS4 and will also support the 32 and 64-bit versions with a Driver CD in the HP Installer Kit for Linux.
Are there other 64-bit distributions of Linux that will work on the HP Workstations?	It is very likely that other Linux distributions will work. However Red Hat Enterprise Linux is the distribution HP is choosing to do a full engineering evaluation and support for our customers.
Can I run 32-bit apps on a 64-bit Linux OS? How does this work?	Yes, you can run 32-bit apps on 64-bit Linux OS as the runtime support (mainly shared libraries) for the application exists on the system. The Linux convention for having 32-bit libraries and 64-bit libraries on the same OS is to have companion library directories. The 32-bit libraries are in the conventional locations…. /lib, /usr/lib, /usr/X11R6/lib, etc whereas 64-bit libraries just append 64 to the directory name such as /lib64, /usr/lib64, and /usr/X11R6/lib64. This also includes 32-bit versions of the graphics libraries which HP has included from the graphics vendors.

What do I do if my 32-bit apps do not run due to missing shared libraries?

You will need to get the library from Red Hat's 32-bit RHEL 3 distribution and put it on your system in the appropriate directory and report the missing library to Red Hat through their Red Hat Network subscription. This will help Red Hat to get the right set of 32-bit libraries needed for most apps in future releases.

Once I have installed the 64-bit version of Linux, what do I have to do to build 64-bit apps?

Simple. Just rebuild from scratch and the compiler will build 64-bit by default. This is true for most apps. However, some apps must be made 64-bit clean which means that the developers must review the code to get rid of any assumptions about 32-bitness, such pointer arithmetic issues. Some makefiles that explicitly declare paths such as /lib, /usr/lib and /usr/X11R6/lib might need to be changed to append "64."

PCI Express Graphics and I/O

What graphics card are available on the new HP xw4550 Workstation?

Integrated Graphics	ATI Radeon X1250
Professional 2D	NVIDIA Quadro NVS290 (256 MB)
Entry 3D	NVIDIA Quadro FX3700 (256 MB) and NVIDIA FX570 (256 MB)
Mid-range 3D	ATI FireGL V5600 (512 MB) and NVIDIA FX1700 (512 MB)

What's the advantage of PCI Express for graphics? What are the differences?

PCI Express is the next generation interface not only for graphics cards, but also for I/O cards. PCI Express is a scalable interface, and depending on the chipset the system can have multiple PCI Express connections with various bandwidths. For graphics cards, the defined standard is "by sixteen" (or x16). This implementation of PCI Express Gen 1 provides twice the unidirectional bandwidth and four times the peak bandwidth as AGP 8X. PCI Express Gen 2 doubles that bandwidth again. The PCI Express specification also allows for 75W from the motherboard to the graphics cards. This is three times as much power as the standard AGP 8X specification.

Should I buy a graphics card with 256 MB or 512 MB of memory?

Graphics performance is dependant upon many factors, including the amount of video memory. Higher performing cards also include bigger and faster GPU's, more memory bandwidth, and tend to have more features like dual-link connectors and support for stereo. The higher performance graphics cards will also have more memory (and a higher price). A dual display configuration at 1920x1200 pixels will allocate about 70MB for the frame buffer. The remaining graphics memory will be used to store textures, display lists (graphics data sent by your applications), and other data specific to graphics. If your application would benefit from more storage space for these items, then you should purchase a graphics card with more memory.

ISV Certifications

HP has very strong relationships with independent software vendors (ISVs). The software vendors recognize that HP is a critical ally in the industry, not only as a hardware OEM, but in marketing and support relationships. HP, in many cases, has engineering personnel located full-time on site at these software vendors' location providing technical support, application performance tuning, and graphics driver optimization.

ISV certification is a critical aspect of the workstation value proposition. Workstation users are running very complicated, high-end, technical applications and reliability and stability are an absolute requirement. The entry workstation is targeted at specific technical applications, many of which were listed above. The following table outlines the applications that are planned for the HP xw4550.

Some of the applications listed in the table do not certify hardware, but they are listed as "targeted" applications. For those applications listed above that do offer hardware certification, the new entry workstation will be certified.

DCC	MCAD/CAE	Other
Adobe	**Autodesk**	**ArcGIS**
Premier/After Effects	Map 3D	**Ardence**
Avid	Civil 3D	Secure
Pinnacle Steinberg/Liquid	Building Systems	**Austin GEO (Linux only)**
XSI	Land Desktop	**Dynamic Graphics**
Autodesk	Inventor	**Earth Decision**
3D Studio Max	Revit	GoCAD
Combustion	AutoCAD	**ESRI**
Toxik	AliasStudio	**Landmark**
Smoke	Electrical	Flagship
MAYA	Mechanical/Desktop	GeoProbe
Canopus	**Bentley**	GeoGraphix
NX	MicroStation	**Leica**
Matrox	**CATIA**	ERDAS Imagine Professional
DigiSuite Family	Catio V5	**Roxar**
Infonet TV	**CoCreate**	**Schlumberger**
RT.X100	OSDM	Petrel
Bluefish	**Dassault**	**Sensor**
HD | Lust	DS Solidworks	MEDxz
	ICEM	RemoteView
	Surf	**SMT**
	PTC	
	ProE	
	ProM	
	UGS	
	NX	
	I-Deas	
	TcVis	
	MSC Nastran	
	Solid Edge	

Security

What security features are available on the HP xw4550?

- Padlock support – standard; padlock loop in rear of chassis
- HP Solenoid Hood Lock/Sensor Kit - optional electro-mechanical lock that is activated through the manageability soft ware on the workstation. Instead of a physical key, the chassis is locked through a password by the local user or the remote system administrator
- Universal chassis clamp lock support - locks side cover and locks cables to chassis; secures chassis from theft and allows multiple units to be chained together when used with optional cable)
- Serial, Parallel, USB Enable/Disable - enables or disables ports and hide them from the operating system
- Removable Media Write/Boot Control - prevents the computer from being booted from removable media on supported devices; can disable writes to media
- Power-On Password - prevents an unauthorized person from booting up the computer
- Setup Password – prevents and unauthorized person from changing the system configuration
- Kensington Cable Lock (optional)
- Internal USB port – prevents theft of ISV applications

Manageability

What manageability features are available on HP Personal Workstations*?

HP Client Management Solutions help you simplify management of your workstations and reduce total ownership costs. These integrated solutions are a result of extensive work between HP and our partner, Altiris, a leading provider of manageability solutions. HP Client Manager Software is a free of charge download available with all HP Personal Workstations. It allows you to centrally track, monitor and manage the hardware aspects of HP client systems on your network. Other benefits include:

- Ability to get valuable hardware information such as CPU, memory, video and security settings
- Monitor system health to fix problems before they occur
- Install drivers and BIOS updates without visiting each workstation
- Remotely configure BIOS and security settings
- Automate processes to quickly resolve hardware problems
- Local recovery

*Available on Microsoft Windows-based systems.

For more information on HP Client Management Solutions: http://h20331.www2.hp.com/hpsub/cache/284018-0-0-225-121.htm?jumpid=ex_R2845_vanityim/goclientmanager/ka011106

What is the HP Performance Tuning Framework*?

The HP Performance Tuning Framework is a preloaded utility which enables the most favorable configuration of HP Personal Workstations delivering stability and best performance. The Framework will guide your system setup, allowing a "custom" configuration that best matches the workstation to user requirements. This customization facilitates availability of the latest graphics cards and drivers and removes some memory restraints. The Framework's extensible design permits new configuration functionality and application support be easily integrated over time. To facilitate the delivery of such new features, the Framework automatically updates itself when newer versions become available. The Performance Tuning Framework, available only from HP, can help save both time and money and increase overall productivity. For more information on the HP Performance Tuning Framework, go to: http://h20331.www2.hp.com/hpsub/cache/285683-0-0-225-121.html

*Available on Microsoft Windows-based system.

Options and modules

What options are available for the new HP xw4550 Workstation?

For a complete list of all options for HP Workstations, go to: www.hp.com/accessories/workstations

Warranty and Support

What is the warranty and support for the HP xw4550 Workstation with Windows?

A standard warranty for the HP xw4550 Workstation is 3-3-3 (3-years parts, 3-years labor and 3-years next business day on-site). A 1-1-1 (1-year parts, 1-year labor and 1-year next business day on-site) is also available as a lower cost option in some countries.

What is the warranty and support for HP Workstations with Linux?

The warranty for HP Workstations with Linux is the standard 3-3-3 with ninety days of OS configuration and installation assistance.

Will HP stand behind Linux when I have problems?

HP is the first place for support. Hardware and software warranties for the workstations with Linux will be the same as that of the Windows workstations. Extended hardware warranties and software support options are also available for purchase for if you need extended coverage.

Why should you use HP support instead of Red Hat?

HP Linux support services are available on a global basis. HP offers predictable multi-platform expertise providing you with a single vendor who can effectively support Linux and Windows environments. HP has leveraged its proven support processes and extensive UNIX expertise to open source environments. HP offers a full portfolio of Linux services, ranging form phone-in assistance through proactive and mission critical services. In addition, a global education, installation and integration services and multi-vendor network services are available to meet Linux and multi-platform support.

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To learn more, visit www.hp.com

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